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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/526,221	11/15/2005	Paulo Cavalcanti Gomes Ferreira	265833US0X PCT	8194

22850 7590 11/12/2009

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EXAMINER	
COLLINS, CYNTHIA E	

ART UNIT	PAPER NUMBER
1638	

NOTIFICATION DATE	DELIVERY MODE
11/12/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/526,221	FERREIRA ET AL.	
	Examiner	Art Unit	
	Cynthia Collins	1638	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 September 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24 and 30-40* is/are pending in the application.

4a) Of the above claim(s) *15, 30-33 and 36-37* is/are withdrawn from consideration.

5)☒ Claim(s) *1-5,8-10 and 38-40* is/are allowed.

6)☒ Claim(s) *6,7,11-14,16-24,34 and 35* is/are rejected.

7)☒ Claim(s) *14,16 and 18* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on September 2, 2009 has been entered.

Claims 25-29 are cancelled.

Claims 1, 5, 6, 10-14, 17, 20, 21, 24, 34, 35 and 38 are currently amended.

Claims 15, 30-33 and 36-37 are withdrawn.

Claims 1-24 and 30-40 are pending.

Claims 1-14, 16-24, 34-35 and 38-40 are examined.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

All previous objections and rejections not set forth below have been withdrawn.

Election/Restrictions

Applicants' request that the claims of any nonelected group which depend from or otherwise include all the limitations of an allowed elected claim, be rejoined upon an indication of allowability for the elected claim, is acknowledged (replies page 10).

Claim Objections

Claim 14 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. If the nucleic acid sequence introduced into a plant in claim 14 is the same as the nucleic acid used to transform a plant cell in claim 1, then claim 14 fails to further limit the subject matter of claim 1.

Claim 16 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. If the nucleic acid sequence introduced into a plant in claim 16 is the same as the nucleic acid used to transform a plant cell in claim 1, then claim 16 fails to further limit the subject matter of claim 1.

Claim 18 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 18 does not further limit claim 17 because the plant of claim 17 already has in at least one cell increased expression of a *cdc2 7a* nucleic acid sequence and/or has in at least one cell increased levels and/or activity of a CDC27A protein, when compared to a wild-type plant of the same plant species, as a consequence of its method of manufacture.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 6, 7, 14, 16, 21, 23 and 24 remain rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention, for the reasons of record.

Applicants' arguments filed September 2, 2009 have been fully considered but they are not persuasive.

Applicants maintain that they are in possession of the claimed subject matter because the original claims and the specification explicitly disclose the genus of nucleic sequences encoding a protein that has at least 95% identity to SEQ ID NO:2 (reply pages 10-11).

Applicants' arguments are unpersuasive with respect to claim 6, because claim 6 requires a separate genus of nucleic acid sequences, sequences which are allelic variants of the cdc27a nucleic acid sequence comprising SEQ ID NO:1, which genus of sequences is not described.

Applicants' arguments are unpersuasive with respect to claim 7, because claim 7 requires a separate genus of nucleic acid sequences, sequences which are splice variants of a cdc27a nucleic acid sequence comprising SEQ ID NO:1, which genus of sequences is not described.

Applicants arguments are unpersuasive with respect to claims 14, 16, 21, 23 and 24, because claims 14, 16, 21, 23 and 24 require a separate genera of nucleic acid sequences,

sequences of unspecified structure that increase the expression of a nucleic acid encoding a CDC27A protein, or that increase or are capable of increasing the level of CDC27A protein, or that are capable of increasing the activity of CDC27A protein, which genera of sequences are not described.

Claims 14, 16, 21, 23 and 24 remain rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a method comprising introducing into a plant in a sense direction a cdc27 nucleic acid sequence having a sequence of SEQ ID NO:1 or encoding SEQ ID NO:2 or encoding a CDC27A protein that is at least 95% homologous to SEQ ID NO:2, does not reasonably provide enablement for methods comprising introducing into a plant other nucleic acid sequences. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention commensurate in scope with these claims, for the reasons of record.

Applicants' arguments filed September 2, 2009 have been fully considered but they are not persuasive.

Applicants maintain that the rejection should be withdrawn because (A) the breadth of the present claims limits the nucleic acid sequences to those which encode the polypeptide of SEQ ID NO: 2 or a polypeptide that is 95% homologous to SEQ ID NO: 2; (B) The nature of the invention involves a method for modifying plant development by transforming a plant with a polynucleotide encoding SEQ ID NO:2 and the necessary steps of this method are straightforward and well within the skill of those in the art; (C) The state of the prior art shows that methods for the identification of functional homologs (e.g. polypeptides 95% homologous to

SEQ ID NO: 2) were well-known and multiple different methods are disclosed on pages 7-9 of the specification; (D) The level of ordinary skill in the molecular biological arts is high, generally Ph.D or post-doctoral level; (E) The level of predictability in the art is high, since the polynucleotides encode polypeptides having a very high degree of structural similarity (i.e., 95% or more) and methods for routine identification of functional sequences were well-known; (F) and (G) The amount of direction provided by the present inventors is high and the claimed method is exemplified; and (H) The quantity of experimentation needed to make or use the invention is limited to merely identifying polynucleotides encoding polypeptides 95% homologous to SEQ ID NO: 2 that modify plant development. (reply pages 12-13)

Applicants arguments are unpersuasive with respect to claims 14, 16, 21, 23 and 24, because claims 14, 16, 21, 23 and 24 are not limited to the use of nucleic acid sequences that encode CDC27A proteins that are at least 95% homologous to SEQ ID NO:2. Claims 14, 16, 21, 23 and 24 require sequences of unspecified structure that increase the expression of a nucleic acid encoding a CDC27A protein, or that increase or are capable of increasing the level of CDC27A protein, or that are capable of increasing the activity of CDC27A protein; the specification does not provide sufficient guidance with respect to which nucleic acids, other than a cdc27nucleic acid sequence having a sequence of SEQ ID NO:1 or encoding SEQ ID NO:2 or encoding a CDC27A protein that is at least 95% homologous to SEQ ID NO:2, will function to increase the expression of a nucleic acid encoding a CDC27A protein, or to increase the level of CDC27A protein, or to increase the activity of CDC27A protein. Such guidance is necessary because non-CDC27A coding sequences that would function as claimed are not known or disclosed, and thus could not predictably be identified. Absent such guidance one skilled in the

art would have to screen a variety of different types of nucleic acids for their ability to increase the expression of a nucleic acid encoding a CDC27A protein, or to increase the level of CDC27A protein, or to increase the activity of CDC27A protein in a plant cell, and then further determine their effect when expressed in a plant transformed therewith in order to identity nucleic acid sequences other than CDC27A coding sequences that will increase the expression of a nucleic acid encoding a CDC27A protein, or increase the level of CDC27A protein, or increase the activity of CDC27A protein in a plant cell, and produce a predictable result. Such a trial and error approach to practicing the claimed invention would constitute undue experimentation.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 11 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 11 is indefinite because the modified phenotypes recited in claim 11 are not members of the group of modified phenotypes set forth in claim 1 from which claim 11 depends. It is suggested that claim 11 be amended to recite members of the group of modified phenotypes set forth in claim 1 in order to overcome the rejection. Alternatively, it is suggested that claim 1 be amended to recite the modified phenotypes set forth in claim 11 in order to overcome the rejection.

Claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as

the invention. Claim 12 is indefinite because the modified phenotypes recited in claim 12 are not organ sizes as required by claim 10 from which claim 12 depends.

Claim 13 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 13 is indefinite because the modified phenotypes recited in claim 13 are not organ sizes as required by claim 10 from which claim 12 depends.

Claim 14 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 14 is indefinite because it is unclear whether the nucleic acid sequence introduced into a plant in claim 14 is the same as, or is in addition to, the nucleic acid used to transform a plant cell in claim 1 from which claim 14 depends, since the nucleic acid sequence introduced into a plant in claim 14 is described differently than the nucleic acid used to transform a plant cell in claim 1.

Claim 16 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 16 is indefinite because it is unclear whether the nucleic acid sequence introduced into a plant in claim 16 is the same as, or is in addition to, the nucleic acid used to transform a plant cell in claim 1 from which claim 14 depends, since the nucleic acid sequence introduced into a plant in claim 16 is described differently than the nucleic acid used to transform a plant cell in claim 1.

Claims 17 and 18, and claims 19, 20, 34 and 35 dependent thereon, are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and

distinctly claim the subject matter which applicant regards as the invention. Claims 17 and 18 are indefinite because a plant obtained by the method according to claim 1 would not have changed or accelerated development, because plants obtained by the method according to claim 1 are not selected for that phenotype. It is suggested that Claims 17 and 18 are be amended to recite the modified phenotypes set forth in claim 1 in order top overcome the rejection.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 21-24 remain rejected, and claims 20 and 35 are rejected, under 35 U.S.C. 102(b) as being anticipated by Hemerly A. et al. (WO 01/02430, published 11 January 2001), for the reasons of record.

Applicants' arguments filed September 2, 2009 have been fully considered but they are not persuasive.

Applicants maintain that the applied reference is not prior art because the sequence alignment provided refers to sequence revised 24-JUL-2008. Applicants also maintain that the applied reference is not prior art because independent claim 21 now require sequences active in plant cells that provide a modified phenotype, which is not disclosed by Hemerly. (reply page 14)

Applicants' arguments are not persuasive because the sequence dated 24-JUL-2008 is the same as the sequence disclosed at pages 6-8 of the sequence listing of WO 01/02430 which was

published 11 January 2001. Applicants' arguments are also not persuasive because the functional recitation in claim 21 is an inherent property of the nucleic acid and its encoded protein, which nucleic acid and encoded protein are taught by Hemerly, including as part of a genetic construct.

With respect to claims 20 and 35, because the plant parts, propagules and progeny plants are not required to be transgenic or to exhibit the phenotype of their transgenic parents, and because the parts, propagules and progeny of transgenic plants may not be nontransgenic, the parts, propagules and progeny plants of claim 20 and 35 are anticipated by any prior art plant. The amendment of claims 20 and 35 to indicate that the parts, propagules and progeny are transgenic, and to indicate that the progeny exhibit the parental phenotype, would overcome the rejection of claims 20 and 35.

Allowable Subject Matter

Claims 1-5, 8-10, and 38-40 are allowed.

Remarks

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cynthia Collins whose telephone number is (571) 272-0794. The examiner can normally be reached on Monday-Friday 8:45 AM -5:15 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anne Marie Grunberg can be reached on (571) 272-0975. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Cynthia Collins/
Primary Examiner, Art Unit 1638

CC